

REMARKS/ARGUMENTS

Claims 1-40 are pending in this application. Claims 8-20 are withdrawn from consideration by the Examiner as being directed to a non-elected invention. Claims 1-7 and 21-40 are rejected. In response, claims 1, 23, 30 and 37 have been amended to recite an amount of the fluorine-based polymer component. These amendments do not add any new matter into the application. Furthermore, claims 3, 24, 31 and 39 have been canceled, without prejudice or disclaimer, in light of the amendments to claims 1, 23, 30 and 37. The Examiner is respectfully requested to reconsider and withdraw the rejections of the claims on the basis of the amendments and remarks submitted herewith to enable this application to proceed to issuance. Upon entry of this Amendment, claims 1, 2, 4-23, 25-30, 32-38 and 40 will be pending in the application.

Further to the above, the specification has been amended to replace the word "density", as used to describe the components of the claimed chemical composition, with the word "concentration". This change was made to correct a translation error made when the Japanese-language application was originally translated into English. Applicants submit that the error is an obvious typographical error that would be readily apparent to one of ordinary skill in the relevant art. As such, this correction is not believed by applicants to add any new matter into the present application. It is, therefore, respectfully submitted that the proposed specification changes should be entered into the file of the application.

Claim Rejections Under 35 U.S.C. §112

Claims 1, 2, 5-7, 23, 25-30 and 32-38 are rejected under 35 U.S.C. 112, first paragraph. According to the Office Action the specification, while being enabling for an oil repelling agent comprising about 0.1 to about 0.6 wt. % fluorine-based polymer, does not reasonably provide enablement for a oil repelling agent having a concentration of fluorine-based polymer outside of this range. The Office Action further states that the instant specification (p. 10, paragraph 0044) teaches that when the fluorine-based polymer concentration is higher than about 0.6 wt. %, the quantity of generated outgas is the same as that of a conventional oil repelling agent. The Office Action also indicates that paragraph 0045, bridging pages 10 and 11, further states that if the concentration of fluorine-based polymer is less than about 0.1 wt. %, the agent can not form an oil repelling film capable of sufficiently preventing wet diffusion.

In response to the §112, ¶1 “non-enablement” rejection, applicants have amended independent claims 1, 23, 30 and 37 to recite that the fluorine based polymer is present within the claimed compositions in a range of from about 0.1 % to about 0.6%. These amendments are completely supported by the application as filed and thus they do not add any new matter. Furthermore, as noted above, claims 3, 24, 31 and 39 have, correspondingly, been canceled without prejudice or disclaimer pursuant to the amendments discussed above to the subject independent claims. The amendments are believed to overcome the basis for the rejection of claims 1, 2, 5-7, 23, 25-30 and 32-38 and the Examiner is, therefore, respectfully requested to reconsider and withdraw the rejection based on §112.

Claim Rejections Under 35 U.S.C. §102/103

Claims 23-36, directed to a bearing component, are rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative under 35 U.S.C. §103(a) as obvious over, Miura et al. (JP 2001-27242). According to the Office Action, the reference discloses a dynamic pressure-bearing device for use, e.g., in a hard disc drive, provided on portions of its surface with an oil repelling agent. Further according to the Office Action, the oil repelling agent comprises a fluorinated resin, corresponding to the instant fluorine-based polymer in a solvent. The Office Action additionally states that, further according to Miura et al., a fluorescent agent, corresponding to the instant UV coloring agent, such as a member of the coumarin system, is added to the oil-repellent composition, thereby making it possible for the parts coated with the oil-repellent agent to be visually recognized immediately.

The Office Action admits, however, that in contrast to applicants’ rejected claims, Miura et al does not teach the concentration of the fluorescent agent or fluorinated resin in the oil-repellant agent composition. The Examiner alleges, however, that this missing feature does not render the claims non-anticipated/non-obvious, because the concentrations of the UV coloring agent and the fluorine-based polymer relate to the oil-repelling agent, whereas the rejected claims are directed to bearing components coated with a film formed from the agent. This rejection is extensively discussed at pps. 8-10 of applicants’ response dated September 27, 2005 and those comments and arguments are expressly incorporated herein by reference.

Further with regard to the Examiner’s position, as noted above, that the concentrations (i.e., of the UV coloring agent and the fluorine-based polymer) in the oil repellent agent are irrelevant because claims 23-36 are directed to a bearing component coated with a oil repellent film while the issue of concentration relates to the oil repellent agent, the Examiner notes in the

present Office Action that the concentrations of the UV coloring agent and the fluorine-based polymer in the film cannot be determined simply from the concentrations of these materials in the coating composition, i.e., the agent. Thus, he ascribes little or no import to the fact that the Miura et al. reference is completely silent with regard to the amounts or proportions of the of the UV coloring agent and fluorine-based polymer contained in the formulations described therein. Further, the Examiner points out (at p. 3 of the present Office Action) that the limitation that the oil repelling film is formed from the recited oil repelling agent is a “product-by-process” type of limitation and that, as such, a rejection as made under 35 U.S.C. §§102/103 is appropriate under M.P.E.P. 2113.

The indicated M.P.E.P. section states: (1) the patentability of a product does not depend on its method of production; and (2) If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process (citing *In re Thorpe*, 777 F.2d 695,698 (Fed. Cir. 1985)). Applicants respectfully submit, however, that the product produced in accordance with the process steps recited in, e.g., independent claims 23 and 30 is neither the same as nor is it obvious over, the product described in the Miura et al. (JP 2001-27242) reference.

The present specification teaches, e.g., in paragraph [0010] on p. 4, that, “Outgas, for example, is generated by heat during operation of a hard disc drive, and by evaporation. This increase in the quantity of the outgas adversely effects [sic., affects] the reliability of the hard disc drive. Also, the outgas may reduce the useful area of the magnetic disc and the density of the memory surface of the magnetic head. It is, therefore, desirable to produce a dynamic pressure device, such as a fluid dynamic pressure bearing device, with a reduced amount of generated outgas.” Paragraph [0011], on the same page, goes on to state, “It is also desirable to produce such a dynamic pressure device without adding significant steps to conventional production processes, which are adapted for mass production.” The above, thus, leads to the inescapable conclusion that since a ‘prior art’ process (such as Miura et al). produces an increased quantity of outgas which, in turn, negatively affects the reliability of products provided with a film formed from the indicated material, then a process using an oil repelling agent which does not increase and, in fact, significantly reduces the amount of outgas produced, as is the case with the presently claimed compositions, will result in production of products (e.g., a hard disc drive) which are not subject to the debilitating effects of the outgas, at least not on a scale found in products produced according to the prior art. Thus the presently claimed products (such as

bearing components used in producing, e.g., hard disc drives) are thereby improved in that they do not suffer from the same disabilities, i.e., a lack of reliability, found in prior art products coating with materials producing a greater amount of outgas during production and use thereof than that which occurs with the use of the present invention.

The above-discussed improvement is thus demonstrated by the Examples provided with the application, wherein formation of coated bearing components/coated fluid dynamic pressure bearing components produced according to the present invention (see, e.g., claims 23 and 30, respectively) produces significantly less outgas than that produced during formation of comparable prior art components (i.e., produced with a ‘conventional’ oil repelling agent, i.e., which was commercially available at the time the present invention was made). Thus, as discussed in the preceding paragraph, devices produced using coated bearings produced according to applicants’ invention are not subject to the ‘reliability problems’ which otherwise are prone to plague devices comprised of components coated with prior art formulations. Furthermore, this significant improvement (i.e., reduction) with regard to the outgas production had no deleterious effect on the visual detectability of the coating produced on the surface of the component. That is, the result of applicants’ invention is to form a coated component wherein outgas production is minimized (with a concurrent increase in reliability compared to products with prior art coatings), while such minimization exerts no negative effect on the important visibility characteristics of the component surface, once the coating of the agent is baked into a film.

The effects achieved with the use of applicants’ invention, as described above, thus fulfill a long-felt need in this field of art. Still further, the use of the oil repelling agent of the invention to form the coating film on the claimed bearing components, which use is specifically recited in applicants’ claims 23-36, eliminates the need for much cumbersome and expensive ancillary equipment and techniques otherwise required for handling the significant quantities of outgas produced with the use of prior art coating compositions. This permits applicants to substantially simplify/streamline the manufacturing process used in producing the bearing components according to the invention, and thus to correspondingly reduce the complexity and cost of producing such parts due, at least in part, to a reduction/elimination of the need for outgas treatment in the process for manufacturing the subject parts.

Since the coated bearing component recited in applicants’ claims 23 and 30 is thus distinguishable from bearings produced with coatings formed from prior art materials for the reasons set forth above, applicants respectfully request the Examiner to reconsider and withdraw

the rejection of those claims under §102 based on Miura. Furthermore, since claims 25-29 depend from claim 23 and claims 32-36 depend from claim 30 and thus contain all of the recitations of the independent claims from which they depend, applicants respectfully assert that the subject dependent claims are distinguishable over Miura for the same reasons as claims 23 and 30.

Moreover, as regards the §103 ('obviousness') component of the §§102/103 rejection over Miura, applicants additionally assert that the improvement(s) to the bearing components obtained with use of applicants' claimed compositions are also unobvious in view of Miura et al. which, admittedly, does not teach or otherwise even suggest to incorporate the amounts of fluorine-based polymer and/or UV coloring agent recited in applicants' claims. Applicants respectfully direct the Examiner's attention to the guidelines provided in M.P.E.P. §2144.08 for determining the obviousness of a species when the prior art teaches a genus. While these guidelines appear to be particularly directed to determining whether claims directed to a species of chemical composition would be obvious based on a single prior art reference disclosing a genus encompassing such chemical composition, applicants, nevertheless, believe that the guidelines are equally appropriate for the purpose of determining whether or not a claim reciting a specific range of one or more material(s) for inclusion in a claimed composition is obvious over a generic reference which, due to the fact it makes no mention of the amount of the indicated material to be included, thus permits the inclusion of any amount of the subject material. As the guidelines take some ten (10) pages of the M.P.E.P. to set forth, applicants will not, herein, attempt to entirely summarize them, opting instead to highlight for the Examiner several portions thereof which, applicants believe, support their position that the present claims reciting specific ranges, i.e., 'species' of the UV coloring agent and the fluorine based polymer are not obvious in view of the generic disclosure contained in Miura et al., i.e., wherein no specific ranges or amounts of these materials are described.

According to M.P.E.P. §2144.08, the patentability of a claim to a specific compound or subgenus embraced by a prior art genus should be analyzed no differently than any other prior art claim for purposes of 35 U.S.C. §103. This entails consideration of the well-known factors set forth by the U.S. Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966), i.e., requiring one to: (A) determine the scope and contents of the prior art; (B) ascertain the differences between the prior art and the claims in issue; (C) determine the level of skill in the pertinent art; and (D) evaluate any evidence of secondary considerations (e.g., a showing of unexpected results).

Turning initially to item (A) above, it is apparent from even a cursory reading of Miura et al. that the subject reference does not contain any disclosure directed to any specific amounts, or ranges of amounts, of either the UV coloring agent or the fluorine based polymer described therein, nor is there any recognition in the subject reference concerning the advantages to be obtained, i.e., both process and product advantages, by utilizing a coating material which produces a minimal amount (or none at all) of outgas.

As to item (B) applicants note that the claims in issue recite specific amounts of the components of the oil repelling agent used to form an oil repellent coating upon, e.g., an outer surface of a bearing component, which amounts are particularly adapted to reduce the amount of outgas produced when the agent is applied to and baked upon the subject bearing in order to form an oil resistant coating thereon. The significant reduction in outgas production does not, however, result in any loss of visual detectability of the film coated on the surface of the bearing component once the oil repellent agent is baked into a film. The Examiner has opined that one of ordinary skill in this art, based on the teachings of Miura et al., would utilize a formulation having the claimed amounts of the targeted materials, i.e., for purposes of optimizing visibility of the coating produced upon the substrate, but he has provided no prior art basis for so holding. Thus, the Examiner's conclusion that it would be "obvious" to incorporate the claimed amounts of, particularly, the UV coloring agent, is based solely upon his opinion which, as indicated, is not supported by any prior art reference or teaching.

As to the level of skill in the prior art (see item (C) above), applicants note that the negative aspects of high levels of outgas were well known by those working in this field at the time the presently claimed compositions were invented, yet nevertheless, none but the present applicants recognized the relation between the amounts of the UV coloring agent (and the fluorine-based polymer) and the amount of outgas produced when the oil repelling agent is baked to form a film upon a substrate such as a bearing component.

Finally, the Examiner's attention is respectfully directed to the discussion above with regard to the existence of certain secondary considerations, such as that the invention satisfies a long-felt need for the reduction of outgas and its ability to obtain unexpected, i.e., surprisingly improved, results.

For all of the reasons above, therefore, the Examiner is respectfully requested to reconsider and withdraw the §103 portion, as well as the §102 portion, of the rejection based on the publication by Miura et al.

Claim Rejections Under 35 U.S.C. §103

Claims 1, 2, 5-7, 37 and 38 are rejected under 35 U.S.C. §103(a) over the Miura et al. reference. In his rejection, the Examiner again notes that Miura et al. does not teach the concentration of the fluorescent agent in the oil repellent agent composition. To support his rejection, however, the Examiner argues that (1) Miura et al. teach that a coloring agent is added to allow for visual recognition of the coating; (2) the amount of coloring agent directly affects the degree of coloration of the product to be colored, i.e., the amount of coloring agent is a results effective variable; and (3) therefore, it would have been obvious to one of ordinary skill to optimize the amount of fluorescent agent in the coating composition of Miura et al., since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

This rejection is responded to in detail in at pps. 10-14 of applicants' Amendment dated September 27, 2005 and those arguments are specifically incorporated herein by reference. Briefly summarized, applicants pointed out in their previous remarks that the problem to be solved by Miura et al. is to optimize the visual recognition of the oil repelling coating produced on, e.g., a bearing component. In contrast, the purpose of incorporating the specifically recited amounts of the UV coloring agent and the fluorine-based polymer in the coating compositions used in the present invention is to reduce the amount of outgas formed when producing bearing components according to the present invention and, in accordance therewith, producing an improved coated bearing, i.e., improved over that available in the prior art wherein such improvement relates to the ability to a superior product, i.e., one whose production does not produce a significant amount of outgas while still exhibiting favorable visual detectability, at a reduced cost, compared to that associated with prior art products which require intricate and expensive processing to deal with the significant amounts of outgas produced during their formation.

The Examiner takes the position, however, at pps. 8-9 of the present Office Action that the Examples provided in applicants' specification do not provide the required degree of unexpectedly improved results necessary to demonstrate the unobviousness of applicants' claims. In this regard the Examiner notes (see Office Action, p. 9) that claims 1-7, 21, 22 and 37-40 are directed to an oil repellent agent, not a bearing, and the oil repellent agent itself does not exhibit a reduction in outgassing. The Office Action further states that with respect to claims 23-36 directed to a bearing, the Examples provided in the specification are of a coating consisting of a fluorine based polymer and a determinable amount of UV coloring agent and

possible some residual solvent. The Examiner states, however, that claims 23-26 do not require that the bearing claimed therein have a fluorine-based polymer film containing a determinable amount of UV coloring agent (and possibly residual solvent), nor is it required to have a specific degree of outgas production. The Examiner additionally states that claims 23-26 require merely that the oil repelling agent which forms the film comprises a fluorine-based polymer, UV coloring agent and solvent, leaving the composition open to any amount of other constituents including materials that decompose or volatilize under the outgassing test conditions of the Examples. For the reasons below, applicants respectfully traverse the Examiner's holding that the evidence of unexpected results presented in not in accordance with the scope of the presently pending claims.

Turning first to the claims to the oil repelling agent, applicants note that the formulation of the agents used in the Examples set forth in the present specification clearly falls within the scope of the formulation(s) recited in the subject claims. Furthermore, as clearly demonstrated in the Examples, when such formulations as recited in the claims were formed into oil resisting coatings on the test substrates, a significant reduction in the quantity of outgas thus produced was achieved, with no corresponding reduction in the visibility of the coating film thus produced. There is no requirement applicants are aware of that the claims directed to the composition of their invention must also recite the beneficial effects of films produced thereby, providing that the specification of the application would clearly teach to one of ordinary skill in the art that the subject compositions are particularly adapted for the formation of such films as have the benefit of producing a reduced amount of outgas and which, thereby, result in the production of an improved product which may be more efficiently, and thus more inexpensively produced due to this aspect, which may thus be offered to the product at comparable quality but reduced price, when compared to the prior art. Applicants would argue, therefore, that the showing provided in the examples filed with the application is necessarily commensurate in scope with the claims directed to the oil repelling agent of the invention and thus, that the Examiner should reconsider and withdraw the §103 rejection directed to those claims based on the Miura et al. reference.

As to the 'bearing' claims, i.e., nos. 23-36, much the same holds true. That is, although such claims do not specifically recite the composition of the film produced on the subject bearings, they do recite the composition of the agent used in forming the composition. Furthermore, the specification teaches, and the examples particularly and specifically exemplify, that when the indicated agent is coated and baked onto the surface of a substrate (such as a bearing component, production of the resultant coating film proceeds with a substantially

diminished amount of outgas being produced, in contrast to that produced with the use of prior art, i.e., “conventional”, oil repelling agents (compare, e.g., Examples 1-3 with, particularly, Comparative Example 1). Applicants respectfully submit, therefore, that the showing of unexpected results provided in the Examples is totally commensurate with the invention recited in claims 23-36. Thus, the Examiner is also respectfully requested to reconsider and withdraw the §103 reduction of those claims as well.

Further to the above, claims 1-7, 21-24, 27, 28, 30, 31, 34, 35 and 37-40 are rejected under 35 U.S.C. §103(a) over Yokouchi et al U.S. Patent No. 6,582,130 in view of Miura et al. The Examiner cites Yokouchi et al. due to its disclosure of a bearing device comprising a rust preventative film made of an oil repellent material. The Examiner acknowledges, however, that the reference does not teach the addition of a UV coloring agent or an organic pigment to the rust preventative film. The Examiner has, therefore, combined Miura et al. with the Yokouchi et al patent due to the disclosure in Miura et al. to incorporate an organic dye or a fluorescent agent, such as a compound of the coumarin system, into the fluorinated coating to allow for immediate visual recognition of coated parts. Further according to the Examiner, one skilled in the relevant art would be motivated to add such a fluorescent agent to the rust preventative coating of Yokouchi et al. as a means for determining whether a part has been coated. As in the case of the §103 rejection over Miura et al. discussed above, the Examiner holds that since the amount of coloring agent directly affects the degree of coloration, the amount of this agent is a results oriented variable and thus it would have been obvious to optimize the amount of this material contained in the formulation as claimed by applicants. This ground of rejection was responded to in detail in applicants' response dated September 27, 2005 and those remarks are, therefore, expressly incorporated by reference into this Amendment.

In response to the above-described ground for rejection, applicants respectfully submit that the present invention is deemed to be completely distinguishable over Miura for the reasons provided above. Moreover, Yokouchi et al., which discloses a rust preventative film made from an oil repellent material, wherein there is no teaching or suggestion in the subject reference to incorporate either or both of a UV coloring agent and/or an organic pigment into such agent, does not remedy the deficiencies of the Miura et al. reference. That is, even taken together with Miura, the combination of Miura and Yokouchi et al. does not disclose the present invention and, even if such combination were to result in the invention claimed by applicants, the combination is believed to be overcome by the showing of unexpected results set forth in the Examples provided in the present application. The Examiner is, therefore, respectfully requested to

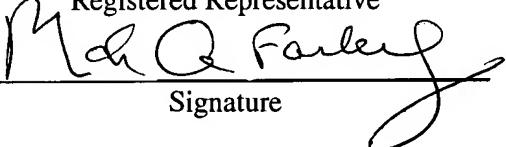
reconsider and withdraw the rejection under §103 based upon the subject combination of references.

Summary

Applicants submit that the amendments and arguments provided above are believed to completely distinguish the claims of their invention over all of the cited prior art and thus the claims are now in condition for allowance, early notice of which would be appreciated.

If the Examiner believes that an interview would be useful in advancing the prosecution of this application, he is respectfully invited to telephone applicants' representative at the number provided below.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on June 20, 2006:

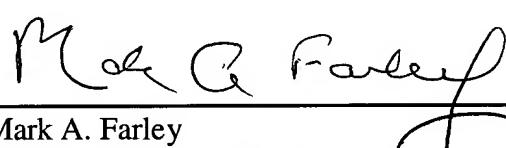
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Respectfully submitted,



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